Claims

1. Radically coupled PTFE polymer powders comprising radiation-chemically and/or plasma-chemically modified PTFE powders, on the particle surfaces of which homopolymers, copolymers or terpolymers are radically coupled via a reaction in dispersion or in substance.

2. Radically coupled PTFE polymer powders according to claim 1, in which the PTFE powder is radiation-chemically modified.

3. Radically coupled PTFE polymer powders according to claim 1, in which the PTFE powder is radiation-chemically modified with a radiation dose greater than 50 kGy.

4. Radically coupled PTFE polymer powders according to claim 3, in which the PTFE powder is radiation-chemically modified with a radiation dose greater than 100 kGy.

5. Radically coupled PTFE polymer powders according to claim 1, in which the PTFE powder is radiation-chemically modified in the presence of reactants.

6. Radically coupled PTFE polymer powders according to claim 5, in which the PTFE powder is radiation-chemically modified under the influence of oxygen.

7. Radically coupled PTFE polymer powders according to claim 1, in which styrene, acrylonitrile, maleic anhydride, acrylic acid, (meth-) methyl acrylate, vinyl acetate, glycidyl methacrylate, (meth-) acrylamide compounds or mixtures thereof are added as polymerizable, olefinically unsaturated monomers.

8. Method for producing PTFE polymer powders according to one of claims 1 through 7, in which PTFE powders with reactive perfluoroalkyl-(peroxy) radical centers are reactively converted after a radiation-chemical and/or plasma-chemical modification in dispersion or substance with the addition of polymerizable, olefinically

unsaturated monomers, whereby during the reaction a polymer-forming reaction to homopolymers, copolymers or terpolymers on the PTFE is realized.

9. Method according to claim 8, in which the PTFE powders with reactive perfluoroalkyl-(peroxy) radical centers after a radiation-chemical and/or plasma-chemical modification are subjected to a tempering at low temperatures yielding the reactive perfluoroalkyl-(peroxy) radical centers.

10. Method according to claim 8, in which radiation-chemically modified PTFE powder is used.

11. Method according to claim 8, in which the PTFE powder is radiation-chemically modified with a radiation dose greater than 50 kGy.

12. Method according to claim 12, in which the PTFE powder is radiation-chemically modified with a radiation dose greater than 100 kGy.

13. Method according to claim 8, in which the PTFE powder is radiation-chemically modified in the presence of reactants.

14. Method according to claim 14, in which the PTFE powder is radiation-chemically modified under the influence of oxygen.

15. Method according to claim 8, in which the PTFE powder is used as a micropowder.

16. Method according to claim 8, in which the reaction is realized in an autoclave or in a stirred tank or in an extruder/kneader.

17. Method according to claim 8 in which styrene, acrylonitrile, maleic anhydride, acrylic acid, (meth-)methyl acrylate, vinyl acetate, glycidyl methacrylate and (meth-)acrylamide compound(s) are added as olefinically unsaturated monomers.

18. Method according to claim 8 in which a mixture of monomers is used.

19. Method according to claim 8, in which macromeres and/or oligomers are used as polymerizable, olefinically unsaturated monomers.

20. Method according to claim 8, in which the PTFE polymer powders are provided with functional groups which in subsequent reactions are reacted with other low-molecular, oligomeric and/or polymeric substances.

21. Method according to claim 19, in which the PTFE polymer powders are incorporated via compounding in plastics/polymers.

22. Method according to claim 20, in which the PTFE polymer powders are incorporated into elastomers and/or thermoplastics and/or thermosets (and/or mixtures thereof).